

## Analytical and experimental investigation of riverbed degradation.

<b>Title</b>	Analytical and experimental investigation of riverbed degradation.
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<b>Abstract</b>	<p>This investigation deals with some analytical and experimental studies of streambed degradation for the case where relatively clear water is discharged at constant rate into the channel at the upstream section. It includes a study of resistance to flow and sediment transport rates in alluvial channels. Various mathematical models of degradation are investigated. Wherever possible, analytical solutions to the basic equations are developed. In other cases fast solutions by numerical techniques are evolved. Chapter 1 introduces the problem of riverbed variations which results whenever the sediment load in streams deviates from the equilibrium transport rates for a reasonably long time. It also presents the significance of the present investigations. The existing methods of estimating flow resistance and sediment transport rates in alluvial streams are reviewed in Chapter 2, whilst in Chapter 4 the existing mathematical techniques of analysing streambed degradation are critically reviewed. Chapters 3 and 5 present the methods developed in this study. Chapter 3 deals with friction factors and total sediment transport rates. The fifth chapter is concerned with the bed degradation and the related subject of bed material coarsening and sorting. Considerations for, and development of, expressions for the length of degradation and the upstream scour and flow depth are also included. In chapter 6 the experimental set-up and procedures are described. The experimental and computational results for degradation are presented and discussed in Chapter 7. Chapter 8 contains the conclusions derived from the experimental and mathematical results. It also suggests some vital areas for further reason.</p>
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